**SHARIQ HAFEEZ**

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# Education

**University Of Michigan – Ann Arbor:**  Computer Engineering 05/2020

GPA: 3.938 / 4.0 University Honors, Dean’s List

Coursework: Data Structures & Algorithms, Intro Computer Architecture, Intro Logic Design,

Intro Signals & Systems, Microprocessor Toys, Discrete Math, Intro Circuits

Current Coursework: Operating Systems, Machine Learning (Coursera), Linear Algebra

Skills: C++, C, Verilog, Python, Assembly (x86 & ARM), Matlab, LTSPICE

# Work History

**System Security Firmware Intern | C, Bash, Assembly** 05/2018 to 08/2018

*Marvell Semiconductor* – Marlborough, MA

* Enabled an enterprise SSD controller to boot over Quad-SPI, doubling memory transfer speed.
* Adapted encryption API to run on dedicated cryptography hardware for new board release.
* Wrote board startup code to initialize cache, setup interrupts, and implement timers. Composed linker script to assemble code, data, stack, and heap for boot code.

**Engineering Intern | C++** 04/2017 to 07/2017

*Intent Design* – Farmington Hills, Michigan

* Led a team in building a propeller thrust bench to determine feasibility of suspending a 15kg device.
* Interfaced a microcontroller with load cell, speed controller, and current sensor to analyze thrust and power consumption at various RPM.

# Personal Projects

**CUDAfy: Source to Source Code Parallelizer | Python, C++, OpenMP** 10/2018 to Present

* Combined static and dynamic analyses to generate efficient, thread-safe code for multi-core CPUs.
* Generated OpenMP directives for synchronization and work distribution of threads and looking to add CUDA and GPU offloading support in the future.
* Used Clang/LLVM for static analysis and detecting race conditions and read/write dependencies.

**Michigan Neuro-Prosthetics – Electronics Lead | C++** 09/2016 to 11/2018

* Led a sub-team of 14 and collaborated with other leaders in creating the electronics for a 3D-printed prosthetic arm actuated by user’s muscle activity.
* Refactored signal processing algorithm to use machine learning to recognize custom gestures.
* Currently integrating bluetooth app to supervise real-time training of neural net and patch device settings.

**IOT Home Security Suite | Python, C++** 12/2018 to 01/2018

* Developed door access control system to verify entries with facial recognition and RFID tags.
* Designed a camera to automatically detect and photograph personnel from nearby detected movements.
* Implemented projects using a raspberry pi and a microcontroller in conjunction with various IO and peripherals.
* Used Google Vision API, AWS for image processing and MQTT, email, and NoSQL database for message passing and data logging.

# Extracurriculars

* Eta Kappa Nu (Honor Society of IEE) – Member
* Middle School Technology Club - Founder